Multi-objective optimisation of electrical discharge machining of metal matrix composite Al/SiC using non-dominated sorting genetic algorithm

Abstract :

In this research, the influence of electrical discharge machining (EDM) on surface roughness and material removal rate (MRR) in metal matrix composite Al/SiC composite was investigated. With use of experimental result analysis and mathematical modelling, the correlation between four EDM conditions and process outputs were studied. Four investigated EDM conditions included pulse on-time, pulse peak current, average gap voltage and percent volume fraction of SiC. For finding optimal conditions, outputs extracted from non-dominated sorting genetic algorithm (NSGA-II) led in achieving appropriate models. The optimisation results showed suggested method has a high performance in problem solving.